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Aditya Mohan

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EXAMINER

HOSSAIN, TANIM M

ART UNIT

PAPER NUMBER

2445

NOTIFICATION DATE

DELIVERY MODE

02/24/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/699,359	<b>Applicant(s)</b> MOHAN ET AL.	
	<b>Examiner</b> Tanim M. Hossain	<b>Art Unit</b> 2445	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20,24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20,24 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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### **DETAILED ACTION**

In view of the Appeal Brief filed on March 10, 2010, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing at the end of the action.

### **Claim Rejections - 35 USC § 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 24 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 24 was previously amended to overcome a rejection under 35 USC 101. However, this amendment renders unclear whether Applicant intends to invoke 35 USC 112, sixth

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paragraph. To invoke 35 USC 112, sixth paragraph, the "means for" recitation cannot be modified by a structure.

### **Claim Rejections - 35 USC § 101**

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 16-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 16-20 teach a computer readable storage medium, which may be a transitory computer readable storage medium. For example, paragraph 0071 of the Specification recites that the computer readable storage medium may be "other form of media capable of portably storing information". This may constitute transitory media. Further, it is recited that software may be transmitted via data signals. These embodiments of computer readable storage media constitute transitory computer readable storage media, and are not considered statutory subject matter. The broadest reasonable interpretation is being given to the claim language.

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-20, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over White (U.S. 2010/0042727) in view of Agrawal (U.S. 2008/0183703).

As per claim 1, White teaches a processor-implemented method for searching for a resource in a plurality of nodes forming a peer-to-peer network, the method comprising: forming Bloom-Filters at the nodes as a function of resources available via the nodes (paragraph 0033; where the peers publish their resources to each other; paragraph 0040; where the resource availabilities are represented by Bloom Filters); communicating the Bloom-Filters between peer-to-peer coupled nodes that have formed connections using incentive-based criteria to control whether one node connects to another node (paragraphs 0033, 0040, 0010; where the peer network is formed based on node locality, which constitutes the incentive-based criteria); forming a search expression for locating the resource (paragraphs 0010, 0034, 0045); for a given node of the plurality of nodes, evaluating other nodes of the plurality of nodes that connected to the given node based on the Bloom-filters and the incentive-based criteria to select one or more of the other nodes to propagate the search expression (paragraph 0034; where a peer may make a request; paragraph 0043; where the bit string represents the resources, and is aggregated for the entire group of peers; paragraph 0045; where the other peers are evaluated for their resources and the request is directed to them based on their contents and proximity; paragraph 0050; where the resource availability is represented as a Bloom Filter); propagating the search expression to the selected nodes (paragraphs 0034, 0043, 0045, 0050); and outputting a result of the search expression from nodes that satisfy the search expression (paragraphs 0034, 0043, 0045, 0050).

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White does not specifically teach that the resources are data objects. Agrawal teaches forming Bloom Filters at the nodes as a function of data available via the nodes (paragraphs 0019, 0044) forming a search expression (paragraphs 0055, 0065-0068), evaluating nodes based on the Bloom Filters (paragraphs 0084-0086, 0089-0090, 0092, 0100-0101), propagating the search expression to nodes (paragraphs 0084-0086, 0089-0090, 0092, 0100-0101); and outputting a result of the search expression (paragraph 0101).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include that the resources of White may be data objects, as taught by Agrawal. The motivation for doing so lies in the fact that both resources and data objects may be represented as Bloom Filters in a peer to peer network in substantially the same manner. Therefore, including the data objects of Agrawal into the peer system of White would result in searching for data objects within an efficient peer system, which would benefit the user. Both inventions are from the same field of endeavor, namely peer-to-peer searching through Bloom Filters.

As per claim 2, White-Agrawal teaches the method of claim 1, wherein forming respective Bloom filters at the nodes includes combining Remote Bloom-filters (RBFs) received from peer-to-peer coupled nodes of the respective nodes (White: 0043, 0045, 0050).

As per claim 3, White-Agrawal teaches the method of claim 1, wherein selecting the nodes includes forming a query Bloom-filter based on the search expression and comparing the query Bloom-filter to the respective Bloom-filters (White: 0034, 0043, 0045, 0050).

As per claim 4, White-Agrawal teaches the method of claim 3, wherein comparing the query Bloom-filter to the respective Bloom-filters includes forming a ranking associated with respective Bloom-filters as a sum of bits of the query Bloom-filter that match the bits of the

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respective Bloom-filter (White: 0043; Agrawal: 0044). The motivation to combine teachings is the same as that set forth in the discussion of claim 1.

As per claim 5, White-Agrawal teaches the method of claim 3, wherein comparing the query Bloom-filter to the Bloom-filters includes forming a ranking associated with respective Bloom-filters as a count of bits of the query Bloom-filter that match the bits of the respective Bloom-filter (White: 0043; Agrawal: 0044). The motivation to combine teachings is the same as that set forth in the discussion of claim 1.

As per claim 6, White-Agrawal teaches the method of claim 1, wherein forming the respective Bloom filters at the nodes includes forming the respective Bloom filters as a function of a local Bloom-filter based on data locally accessible by the respective nodes (White: 0033-0034, 0040).

As per claim 7, White-Agrawal teaches the method of claim 1, but does not specifically teach that the peer-to-peer network is a Gnutella network. Official Notice is taken that the Gnutella network is a well known peer-to-peer network, and to include it as the peer-to-peer network of White-Agrawal would have been obvious to one of ordinary skill in the art at the time of the invention, given its commonness.

As per claim 8, White teaches a system comprising: a plurality of data processors coupled via a peer-to-peer network arrangement, each data processor including: a network interface arranged to provide one or more respective connections with one or more associated data processor of the peer-to-peer network arrangement, the connections formed using an incentive-based criteria (paragraphs 0010, 0033, 0040); a memory for storing one or more respective remote Bloom filters representing resources accessible via the associated connections

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(paragraphs 0033, 0040, 0043, 0045, 0050); and a processing unit arranged to form a query Bloom-filter based on a resource query (paragraphs 0040, 0043, 0045, 0050); for a given node of the plurality of nodes, evaluate other nodes of the plurality of nodes that connected to the given node based on the Bloom-filters and the incentive based criteria to select one or more of the other nodes to propagate the search expression (paragraphs 0010, 0040, 0043, 0045, 0050); select a subset of the connections as a function of the query Bloom-filter and the respective remote Bloom-filters associated with the connections (paragraphs 0040, 0043, 0045, 0050); and send the resource query to the subset of the connections (paragraphs 0040, 0043, 0045, 0050).

White does not specifically teach that the resources are data objects. Agrawal teaches forming and storing Bloom Filters at the nodes as a function of data accessible via connections (paragraphs 0019, 0044) forming a query Bloom Filter based on a data query (paragraphs 0055, 0065-0068), evaluating connected nodes based on the Bloom Filters (paragraphs 0084-0086, 0089-0090, 0092, 0100-0101), propagating the search expression to the appropriate selected nodes, selecting the nodes as a function of the query Bloom Filter, and sending the data query to them (paragraphs 0084-0086, 0089-0090, 0092, 0100-0101).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include that the resources of White may be data objects, as taught by Agrawal. The motivation for doing so lies in the fact that both resources and data objects may be represented as Bloom Filters in a peer to peer network in substantially the same manner. Therefore, including the data objects of Agrawal into the peer system of White would result in searching for data objects within an efficient peer system, which would benefit the user. Both inventions are from the same field of endeavor, namely peer-to-peer searching through Bloom Filters.



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As per claim 9, White-Agrawal teaches the system of claim 8, wherein at least one data processor of the plurality of data processors further includes a local data storage adapted for storing data objects (Agrawal: 0084-0086, 0089-0090, 0092). The motivation to combine teachings is the same as that set forth in the discussion of claim 8.

As per claim 10, White-Agrawal teaches the system of claim 9, wherein the memory of the at least one data processor is configured for storing a local Bloom-filter representing data accessible via the local data storage (Agrawal: 0084-0086, 0089-0090, 0092). The motivation to combine teachings is the same as that set forth in the discussion of claim 8.

As per claim 11, White-Agrawal teaches the system of claim 8, wherein the processing units of the data processors are further arranged to publish a Bloom-filter to a selected connection of the one or more connections, the Bloom-filter representing data accessible via the respective data processors (Agrawal: 0084-0086, 0089-0090, 0092). The motivation to combine teachings is the same as that set forth in the discussion of claim 8.

As per claim 12, White-Agrawal teaches the system of claim 11, wherein the Bloom filter is formed as a logical OR of the remote Bloom filters of the respective data processors except for the remote Bloom filter associated with the selected connection (Agrawal: 0084-0086, 0089-0090, 0092). The motivation to combine teachings is the same as that set forth in the discussion of claim 8.

As per claim 13, White-Agrawal teaches the system of claim 11, wherein at least one data processor of the plurality of data processors further includes a local data storage adapted for storing data, and the memory of the at least one data processor is configured for storing a local Bloom-filter representing data accessible via the respective local data storage (Agrawal: 0084-

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0086, 0089-0090, 0092). The motivation to combine teachings is the same as that set forth in the discussion of claim 8.

As per claim 14, White-Agrawal teaches the system of claim 13, wherein the Bloom filter is formed as a logical OR the local Bloom-filter (Agrawal: 0092); and the remote Bloom filters of the respective data processor except for the remote Bloom filter associated with the selected connection (Agrawal: 0084-0086, 0089-0090, 0092). The motivation to combine teachings is the same as that set forth in the discussion of claim 8.

As per claim 15, White-Agrawal teaches the system of claim 8, but does not specifically teach that the peer-to-peer network arrangement is a Gnutella network arrangement. Official Notice is taken that the Gnutella network is a well known peer-to-peer network, and to include it as the peer-to-peer network of White-Agrawal would have been obvious to one of ordinary skill in the art at the time of the invention, given its commonness.

As per claim 16, White teaches a computer-readable storage medium having instructions stored thereon which are executable on a processor for performing steps comprising: forming one or more respective peer-to-peer connections with one or more network peers of the processor using an incentive-based criteria (0010); receiving respective remote Bloom-filters representing available resources via associated peer-to-peer connections (0033, 0040, 0043, 0045); forming a query Bloom-filter based on a resource query (0033, 0040, 0043, 0045); for a given node, evaluate other nodes connected to the given node to select nodes to propagate a search expression associated with the query based on incentive-based criteria and the one or more respective remote Bloom filters (0033, 0040, 0043, 0045, 0050); selecting a subset of the peer-to-peer connections as a function of the query Bloom-filter and the respective remote Bloom

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filters associated with the peer-to-peer connections (0033, 0040, 0043, 0045); and sending the resource query to the subset of the connections (0033, 0040, 0043, 0045).

White does not specifically teach that the resources are data objects. Agrawal teaches forming Bloom Filters at the nodes as a function of data available via peer-to-peer connections (paragraphs 0019, 0044) forming query Bloom-filter (paragraphs 0055, 0065-0068), evaluating nodes based on the Bloom Filters (paragraphs 0084-0086, 0089-0090, 0092, 0100-0101), propagating the search expression to nodes based on remote Bloom Filters (paragraphs 0084-0086, 0089-0090, 0092, 0100-0101); and sending a data query to a subset of connections (paragraph 0101).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include that the resources of White may be data objects, as taught by Agrawal. The motivation for doing so lies in the fact that both resources and data objects may be represented as Bloom Filters in a peer to peer network in substantially the same manner. Therefore, including the data objects of Agrawal into the peer system of White would result in searching for data objects within an efficient peer system, which would benefit the user. Both inventions are from the same field of endeavor, namely peer-to-peer searching through Bloom Filters.

As per claim 17, White-Agrawal teaches the computer-readable storage medium of claim 16, wherein the steps further include forming a local Bloom-filter based on data accessible via a local data storage of the processor (Agrawal: 0084-0086, 0089-0090, 0092). The motivation to combine teachings is the same as that set forth in the discussion of claim 8.

As per claim 18, White-Agrawal teaches the computer-readable storage medium of claim 16, wherein the steps further include sending a Bloom-filter to a selected peer-to-peer connection

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of the one or more peer-to-peer connections indicating data accessible via the processor (Agrawal: 0084-0086, 0089-0090, 0092). The motivation to combine teachings is the same as that set forth in the discussion of claim 8.

As per claim 19, White-Agrawal teaches the computer-readable storage medium of claim 18, wherein the Bloom filter is formed as a logical OR of the remote Bloom filters of the processor except for the remote Bloom filter associated with the selected peer-to-peer connection (Agrawal: 0084-0086, 0089-0090, 0092). The motivation to combine teachings is the same as that set forth in the discussion of claim 8.

As per claim 20, White-Agrawal teaches the computer-readable storage medium of claim 16, but does not specifically teach that the peer-to-peer connections utilize a Gnutella protocol. Official Notice is taken that the Gnutella network is a well known peer-to-peer network, and to include it as the peer-to-peer network of White-Agrawal would have been obvious to one of ordinary skill in the art at the time of the invention, given its commonness.

As per claim 24, White teaches a data processing arrangement, comprising: means comprising a processor to form respective peer-to-peer data connections with one or more network peers using an incentive-based criteria (0010); means comprising a processor to store remote Bloom-filters associated with respective peer-to-peer data connections, the Bloom-filters indicating resources accessible via the respective peer- to-peer data connections (0033, 0040, 0043, 0045); means comprising a processor to form a query for locating one or more resources of the network peers (0033, 0040, 0043, 0045, 0050); means comprising a processor to, for a given node of the plurality of nodes, evaluate other nodes of the plurality of nodes that connected to the given node based on the Bloom-filters and the incentive-based criteria to select one or more of

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the other nodes to propagate the search expression (0010, 0033, 0040, 0043, 0045, 0050); and means comprising a processor to send the query to a subset of the peer-to-peer data connections as a function of the query and the Bloom filters associated with the respective peer-to-peer data connections (0010, 0033, 0040, 0043, 0045, 0050).

White does not specifically teach that the resources are data objects. Agrawal teaches storing remote Bloom Filters at the nodes indicating data accessible via peer-to-peer connections (paragraphs 0019, 0044) forming query for locating data objects (paragraphs 0055, 0065-0068), evaluating nodes based on the Bloom Filters (paragraphs 0084-0086, 0089-0090, 0092, 0100-0101), propagating the search expression to nodes based on remote Bloom Filters (paragraphs 0084-0086, 0089-0090, 0092, 0100-0101); and sending a data query to a subset of connections (paragraph 0101).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include that the resources of White may be data objects, as taught by Agrawal. The motivation for doing so lies in the fact that both resources and data objects may be represented as Bloom Filters in a peer to peer network in substantially the same manner. Therefore, including the data objects of Agrawal into the peer system of White would result in searching for data objects within an efficient peer system, which would benefit the user. Both inventions are from the same field of endeavor, namely peer-to-peer searching through Bloom Filters.

As per claim 25, White-Agrawal teaches the data processing arrangement of claim 24, but does not specifically teach that the peer-to-peer data connections utilize a Gnutella protocol. Official Notice is taken that the Gnutella network is a well known peer-to-peer network, and to

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include it as the peer-to-peer network of White-Agrawal would have been obvious to one of ordinary skill in the art at the time of the invention, given its commonness.

### **Response to Remarks**

Applicant's remarks in the Appeal Brief filed on November 15, 2010 have fully been considered and are respectfully traversed by the new grounds of rejection.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanim M. Hossain whose telephone number is (571)272-3881. The examiner can normally be reached on 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on (571)272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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